

Onboard Space Autonomy Through Integration of Health Management and Control Reconfiguration, Phase II

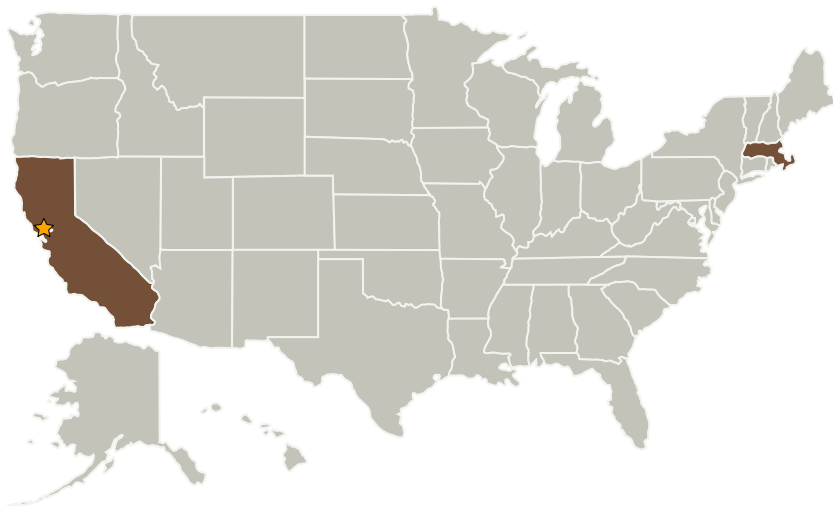
Completed Technology Project (2005 - 2007)



Project Introduction

The main objective of this Phase II effort is to develop integrated health management and control reconfiguration algorithms that allow future space systems to respond autonomously and optimally to subsystem failure or degradation. This will involve developing new techniques for health monitoring and data fusion, as well as those for identifying, characterizing, and exploiting analytic redundancy. To achieve our goal of demonstrating the features of the proposed technology, Phase II will focus on developing an integrated health management system prototype for a combined system of Electrical Power Distribution and Control subsystem and Attitude Control Subsystem that is present in all space vehicles, including the Crew Exploration Vehicle (CEV). The prototype will be developed based on an open architecture, and will be tested on hardware facilities maintained by Boeing Phantom Works to ensure the proposed technologies will reach the required maturity level for transitioning to NASA by the end of the Phase II period. Our subcontractor Boeing is part of a team selected by NASA to develop preliminary designs for the CEV. The partnership will allow us to transition the Integrated Vehicle Health Management (IVHM) and control reconfiguration technology developed under this project to the CEV program aggressively during Phase III.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Scientific Systems Company, Inc.	Supporting Organization	Industry Small Disadvantaged Business (SDB)	Woburn, Massachusetts

Primary U.S. Work Locations

California	Massachusetts
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
 - └ TX03.3 Power Management and Distribution
 - └ TX03.3.1 Management and Control